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WATER SUPPLY OUTLOOK FOR UTAH

Prepared by

U. S. DEPARTMENT of AGRICULTURE * SOIL CONSERVATION SERVICE

Collaborating with

UTAH STATE DEPARTMENT OF NATURAL RESOURCES -- DIVISION OF WATER RIGHTS

In cooperation with U.S. Forest Service, Bureau of Reclamation, Utah Fish and Game Dept., Utah State University, U.S. National Park Service, U.S. Geological Survey, and other Federal, State, and private organizations.



TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

PUBLISHED BY SOIL CONSERVATION SERVICE

- The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center, Room 209, 511 N. W. Broadway, Portland, Oregon 97209.
- Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	204 E. 5th. Ave., Room 217, Anchorage, Alaska 99501
Arizona	6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 970, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82601

MENT of

CONSERVATION OF WATER
BEGINS WITH THE
SNOW SURVEY

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia

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WATER SUPPLY OUTLOOK FOR UTAH

and FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

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In Cooperation with

HUBERT C. LAMBERT

STATE ENGINEER
DIVISION OF WATER RIGHTS
UTAH STATE DEPT. OF NATURAL RESOURCES

Report prepared by

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SOIL CONSERVATION SERVICE SNOW SURVEY SECTION FEDERAL BLDG., ROOM 4012 SALT LAKE CITY, UTAH 84111



WATER SUPPLY OUTLOOK

SUMMARY

as of

OCTOBER 1, 1973

Utah's water supply for 1973 varied from near average on the Logan River to excellent on southern Utah streams.

Delayed snow me1t and good precipitation in June and July resulted in most streams flowing more during the April-July period than forecasts indicated last May 1st. Streams in southern Utah such as East Fork Sevier and Coal Creek that were forecast to flow 390% and 238% of average had measured flows that were about 894% and 574% of average according to the U. S. Geological Survey provisional records.

Fall soil moisture is better than average in most areas except southern Utah.

Reservoir storage is excellent. Fourteen reservoirs average 155% of the 15-year average for October 1, and are 14% better than a year ago and 76% of useable capacity.

The following table shows a comparison of streamflow forecasts made last May 1 to the provisional flows measured by the U. S. Geological Survey and Bureau of Reclamation.

Station	Forecast Period	May 1 Forecast (1000 A.F.)	Measured Flow for the period (1000 A.F.)
Bear at Utah-Wyo. Line	May-July	115	100
Bear nr Woodruff	May-July	101	125
Bear nr Randolph	May-July	62	99
Smiths Fork nr Border	April-Sept	122	88
Thomas Fork nr Wyo-Ida.Line	Apr-Sept	37	30
Logan River nr Logan	May-July	90	80
Little Bear nr Paradise	May-June	30	30
Pineview Res. Inflow	May-June	98	
Lost Creek Res. Inflow	May-June	13	12

WATER SUPPLY OUTLOOK (continued)

Station	Forecast Period	May 1 Forecast (1000 A.F.)	Measured Flow for the period (1000 A.F.)
East Canyon Res. Inflow	May-June	16	22
Rockport Inflow	May-June	110	90
Scoffield Inflow	May-July	40	44
Sevier at Hatch	May-July	60	71
East Fk. Sevier nr Kingston	May-July	25	57
Beaver River near Beaver	May-July	25	37
Coal Crk. nr Cedar City	May-July	26	63
Virgin River nr Virgin	May-June	65	100*

^{* -} Estimated from Virgin nr Hurricane

RESERVOIR STORAGE (Thousand Acre Feet) END OF MONTH

	RESERVOIR	Usable		Usable Storage	
Basin or Stream	RESERVOIR	Capacity	This Year	Last Year	Average +
	GREAT BASIN				
Bear River	Bear Lake Woodruff Narrows	1421.0 26.5	11 <i>5</i> 3.1 16.9	1225.8	889.2
Beaver River	Minersville(Rky Fd	23.3	11.6	2.4	3.5
<u>Little Bear</u>	Hyrum Porcupine	15.3	10.5	13.3	3.8
<u>Ogden</u>	Causey Pineview	6.9 110.1	2.0 66.2	1.3 56.5	 12.7
Provo	Deer Creek	149.7	103.9	80.1	88,9
Sevier River	Gunnison Otter Creek Piute Sevier Bridge	18.2 52.5 71.8 236.0	4.1 20.8 123.4	.6 10.2 65.9	10.1 6.5 41.0
Spanish Fork	Strawberry	270.0	200.1	167.4	123.0
Utah Lake	Utah Lake	883.9	740.3	554.6	440.2
<u>Weber</u>	East Canyon Echo Lost Creek Rockport Willard Bay	48.1 73.9 20.0 60.9 193.3	32.5 41.0 12.6 59.2 166.0	33.9 29.0 13.6 43.8 159.0	9.5 15.8 19.6
	COLORADO RIVER	DRAINAGE			
Ashley Creek	Steinaker	33.3	20.7	18.4	
<u>Colorado</u>	Blue Mesa Lake Powell	829.5 25002.0	715.6 17284.0	511.0 12488.0	
Green	Flaming Gorge	3749.0	3180.0	3465.0	
Lake Fork	Moon Lake	35.8	17.7	4.6	7.2
Price River	Scofie1d	65.8	42.2	19.5	17.7
<u>San Juan</u>	Navajo	1696.0	1393.1	898.1	
San Rafael	Huntington North Joe's Valley Mill Site	3.9 54.6 16.7	4.0 37.4 6.3	.9 31.6 2.3	
Strawberry	Starvation	165.3	139.6	136.8	
<u>Uintah</u>	Bottle Hollow	11.3	10.7	11.0	

USDA-SCS-PORTLAND, OREG 1969



UTAH PRECIPITATION DATA

1973 WATER YEAR

*: GAGE MOLESTED, DATA FOR THIS PERIOD LOST



UTAH PRECIPITATION DATA

1973 WATER YEAR

STATION NAME	OCTDEC.	JAR	MUARY	FEBRU	AR¥	MARCH		APRIL		MAY		JUNE		JULY-S	EPT.	TOTAL
GUILDERS PEAK	12/27 10.	93 1/3	3.84	2/25	2.82	3/28	3.48	4/27	3 • 33	5/25	4 -19			8/06		35.05
DODOO KNOL	2/27 11	3 1/	1 4.8	12	90	72	3	12	3	12	6.			2 2		7.6
ORSE RIDG	2/29 1	2 .17	1 2.5	12	.7	12	• 4	4127	5.01	6/01	2.40	67/9	1.50	11	9.85	0.0
OST CREE	2/29 7	64 1/	1 1.7	12	9.	0/	8							/1	5	2.4
AGPIE	2/27 11	39 1/	1 3.1	12	-	12	•	12	٧.	9	E,			9		0.4
IDDLE FK	2/27 15	46 1/	1 3.2	12	•	12	4.	/2	.5	6/01	2.32			12		8 ° 6
ARLEY CYN SM	2/30 1	27 1/	0 2.9	12	0	12	.5	4/57	60.5	12	0	67/9	1.40	7	90.8	1.4
OR CUP INE	2/27 10	38 1/	1 3.2	12	• 9	12	4.	12	•2					7		1.6
EDDON MINE U	2/28 15	6		12	.5			12	4	/3	~	12	9.	12	0	2.6
AGEBRUSH F	2/28 8	0	0 2	12	•4	3/30		12	6.	5/30	1.76	6/58	1.63	12	5.85	7.7
ARGEANT LAKE	2/27 12	54 1/	1 3.8	12	~	12	-	12	5	12				7		0.7
HINGE MIL FL	2/27 16	parts.												0		5.0
M MOREHOUS	2/26 11	9	0 2.32	2/26	2.15	3/28	2.65	4/27	3.65	5/29	3.02	6/28	16.0	126	10.30	6.9
UTAH LAK	E - J D R	D A N	> ~	ar ar	B A S	Z										
LEAR CR RDG	2/27 11	5 1/	9 2.4	12	• 4	12	• 6	12	• 6	12	5	0/	• 2	0	10	9.6
ANIEL-ST	2/26 1	2 1/	0.4.0	12	6.	12	.2	12	9 .	13		6/55	1.40	97/6	8.10	37.64
ESERET PEA	2127 9		1 6.82	2/25	6.21	3/28	7.55	4127	5.21	5/25	2.28					
UTCHM AN	0/2 13	5 1/	1 3.7	12	6.	13	-	12	.7							
AST PORTA	2/29 10	0 1/	0 2.5	12	•5	12	۰ 4	12		/3	~	0/	\mathcal{E}_{\bullet}	0/	80	0.5
ARMINGTON	2/30 16	0 1/	1 6.3	/2	0	/3	8	/3	4.	13	ϵ	0/	5	0/	٠ 4	₹ • 3
OBBLE CR SM	2/29 13	5 1/	0 3.3	12	0	12	0	12	'n	5/29	1.55	0/	.2	0/	, 4	5.7
AKE CREEK	_	9 8										125	27.08	12	3	2.4
AMBS CA				¢.		12	• 6	12	٠,4	12	00			1	.3	2.2
AYSON R	2/26 14		6 4.75	12	.2	12	•	12	•	5/23	1.35	7/02	2.60	0/	• 6	7.6
OCKY BASIN	1/4			0/	6.	/3	.7	9	٠4					12	.2	3.9
DAPSTON	2/29 12	8 1/	1.4	/5	0	12	0.	/3	3	/3	5	12	9.	12	6.	3.3
LAKE	12/29 15.	84 1/3	11 3.07	2/28	4.33	3/29	4.15	4/30	3.96	5/30	2 . 42	6/27	1.87	6/27	11.22	46.86
ERNON CR	0/3 10			0	6	0/	0	/3	5-	/3	-	0/	٠ ٦	12	p(2.5
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SHLEY TWIN														13	•	ø ,
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RIMN DUCK	07/3			7/	7	7 /	9	4/25 2	5.79	7/	9	9 /	,	3 0	. 6	9 9
UCK PASTURE								4)			6/26	25.82	2/	1.5	7.3
URNT CREEK	11/29 6.	67 1/2	4 3.81	2/25	0.82	3/26	1.88	6/30	6.20	5/29	1.60	707	0 • 8	124	9.9	8 . 4
NOTE: BLANK SPA	ACES INDICA	TE NO	READING T	AKEN,	NEXT	EADING	IS CUP	CUMULATIV	E (EXCE	PT AS	NOTED	4				

** GAGE MOLESTED, DATA FOR THIS PERIOD LOST



UTAH PRECIPITATION DAT

1973 WATER YEAR

APRIL	MARCH	FEBRUARY MARCH	MARCH
9 7 2	3.28 3/22	3/8	3.28 3/
	,		
ω 	1.80 3/26	3.41 2/21 1.80 3	2/21 1.80 3
2	3.52 3/2	3.52 3/2	3.52 3/2
	9.8	2/22 9.83	9.8
4 .	0.9	2.81 2/25 0.93 3/2	1/31 2.81 2/25 0.93 3/2
	2.42 3/2	1.67 2/27 2.42 3/2	2127 2.42 312
- 2	1.87 3/20	1.74 2/23 1.87 3	2/23 1.87 3
	0	0	0
n 	66.0	0 66.0	6/61 2027 3
3	1.82 3/27	1.42 2/26 1.82 3	2/26 1.82 3
2		1.73 2/23 1.78 3	1.73 2/23 1.78 3
	2 - 34 3	1.96 2/23 2.34 3	2/23 2,34 3
5	3/56	-	-
3	1 .2	14.25 2/22 1.25 3/2	2/22 1.25 3/2
	0.84 3/2	0.84 3/2	2/25 0.84 3/2
			76.94

BLACKS FLAT UM	12/26	9.28	1/29	1.62		2.02	3/26	2.12	4/25	3.68	5/59	2.20	6/27	0.91	97/6	4.10	25.93
BUCKBDARD FLAT		26.84				6.80	3/21	6.03	4154	3.50	5/23	2.75	6/26	3.15	1/01	4 . 8 5	53.92
BUCK FLAT	12/29 12.15	12.15	1/29 2.10	2.10	3/01	3.10	3/26	3.35	4/25	3.45	5/30	3.55	6/27	1.15	9/58	4.60	33.45
CAMP JACKSON		21.45			2/20	9.55	3/21	5.02	4/54	3.66	5/54	2.46	6/27	2.50	1/01	6.10	50.74
DILLS CAMP		10.30			3/02	09.5	3/27	2.60			5/59	5 .80	6/27	0.95	9/28	4.50	28.75
FISH LAKE		8.17	1/29	1.25	2/22	1 .05	3/26	1.76	4/25	2.47	5/59	2.12	6/27	0.61	9/56	4.58	22.01
GOOSEBERRY RES		12.60	1/30	00° 5	2/26	3.80	3/58	3.50	97/5	3.70	67/5	2.50	7/05	2.05	9127	3.97	36.12
LASAL MTN UP		13.88			2/21	6 •35	3/22	3.96	4/25	4.15	5/25	5 . 95	97/9	4.15	1/01	3.35	38.79
MUD CREEK		11.89	1/29	1.57	3/01	2.98	3/27	3.76	4/30	3.99	5/59	1.78	6/28	0.93	9/58	3.70	30.60
DRANGE DLSEN		6.55	1/30	1.35	2/25	1.30	3/28	1.70	4/56	1.55	5/31	1.10	6/28	09.0	9/58	3.15	17:30
RED PINE RIDGE		14.20	1/30	1/30 2.00	2/26	2 .90	3/28	3.15	4/56	4.40	5/31	3.10	6/28	1.65	9/58	3.65	35.05

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ص م NOTE: BLANK SPACES INDICATE NO READING TAKEN, NEXT READING IS CUMULATIVE (EXCEPT AS NOTED *) *: GAGE MOLESTED, DATA FOR THIS PERIOD LOST

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TAH PRECIPITATION DAT

1973 NATER YEAR

TOTAL	23.15		32.51	2.2	3.7	9,6	3.5	6.2	4.3	7.8	7.3	7.2	1.9	1.9	5.7	6.5		48.10	7.5		9 6	4.5	
EPT.	3.08		4.50	• €.		9.		. 7	80	4.	ω,	p=45 8	80	80	6	0		2.52	4.	• "	, &	6.	
JULY-SEPT	1/01		9/26	/2	12	72/	72/	12	17	12	12	12	12	12	12	12		1/01	9;	1 6	7	12	
	1.05		4.20	; ;	• 5	3 "	0	-	4.		0		6		.7	0.70		2.60			2.16		
JUNE	6/28		7/02	2 2	12	20	0/	0/	0/		0/	2	67/9		12	6/28		7/05			6/59		
	1.10		7	2.65	9.	4. 4	2	5.	Ö			۰2	1.57	.7		3 • 3 0		3.10		9 6	0	S.	
¥ A M	5/31 5/29		/3	5/29	13	2	30	12	12			/3	5/30	13		6/01	S	5/30	75	2 (13,	12	
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APRIL	4/30		4/25	72	12	23	72	12	12	12	12	0/	12	9	0	/3	63	4/30	12	7 (77	12	•
-	5.60		2.70	.3	80	m a	~ ~	4.	e,	0	• 2		2.7		7.6	FU.	I V E	9.70	٠,	0, 1	9	.7	
MARCH	3/28		3/27	12	12	~ <	2/2	12	12	12	12		12	40/5	0		ez E	3/30	9	7 "	2 ?	0/	
JARY	2.07	N N	5.82	2.	•2	80 <	9	6.	0	•2	5		7.	3.47	•	3	⊢ ≥	5.60		, וו	10	0	
FEBRU	2/23	B A S	2/23	72	0/	27	72	/2	12	12	12		0/	2/25	12	/2	CAL	2/28	9 (3,0	77	12	
IRY	0.54	Ж	7	9.83		w 4 w 4	6	80	ϵ	4		13.45			0	0	- E S	4.90	1.5	1 0	0		
JANUA	1/31	R .	,	1/30		1/29	7	/3	/2	/3		2/01		12	1/26	/3	№ 5	1/302/2/01	(3	7 (12/		
DEC.	9.00	ш Ж	9.74	3 8 4	1.9	4	3 m	2.9	6.6	اما •	• 4	α •	7.	3.8	6	0.2	V 1 R	16.70	,	7 0	13.76	0.4	
OCTD	12/27	E A V	12/26	0/2	2/2	2/2	2/2	2/2	2/2	2/2	212	0/5	2/2	0/2	0/2	77	m ₹	12/18	,	2/2	12/28	2/2	
STATION NAME	STUART RS OLD WHITE RIVER 1	SEVIER-B	84 -	OX CREE	ASTLE VALLE	UCK CREE	IMBERLY MINE	AMMATH RS	ERCHANT VAL	IDWAY VA	T BALDY RS	AK CREE	ANGUIT	INE CREEK	HINGLE MIL	ICKLE KEG	COALCRE	KOLOB-CRYSTAL LITTLE GRASSY	DNG FLAT	ALL FULLS	I DTSOE-	ANKEE RES	

Agencies Cooperating in Utah Snow Surveys

U.S. GOVERNMENT AGENCIES

- U.S. Department of Agriculture Soil Conservation Service Forest Service
- U.S. Department of Commerce NOAA, National Weather Service
- U.S. Department of Interior
 Bureau of Reclamation
 Geological Survey
 National Park Service

STATE AGENCIES

Utah State University
Utah Fish and Game Department
Utah State Department of Natural
Resources, Division of Water Rights
Bear River Commissioner
Price River Commissioner
Provo River Commissioner
Sevier River Commissioners
Spanish Fork River Commissioner
Utah Lake and Jordan River Commissioner

MUNICIPALITIES

Manti Salt Lake City

ORGANIZED PUBLIC AGENCIES

Beaver River Water Users Association
Board of Canal Presidents - Jordan River
Emery Canal and Reservoir Company
Moon Lake Water Users Association
Ogden River Water Users Association
Provo River Water Users Association
Strawberry Water Users Association
Sevier River Water Users Association

PRIVATE AGENCIES

Kaiser Steel Corporation

UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FEDERAL BLDG., — ROOM 5434
125 SOUTH STATE ST.
SALT LAKE CITY, UTAH 84111

OFFICIAL BUSINESS PENALTY FOR PRIVATE USE, \$300



COOPERATIVE SNOW SURVEYS

Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation, navigation, mining and industry

"The Conservation of Water begins with the Snow Survey"









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